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ABSTRACT

This paper describes the materials, processes, and effects of three individualized compensatory courses in reading, writing, and mathematics. Each course was outlined separately and evaluated according to student performance in selected transfer-level courses. Follow-up studies for each course show that the performance level of former developmental-skills students in the transfer-level courses was equal to, or higher than, that of the students who had not been enrolled in compensatory courses. In addition, the dropout rate among developmental-skills students was less than, or equal to, that of the other students in each class. (MAI)

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PERSONALIZED INSTRUCTION IN COMPENSATORY COURSES: A FOLLOW-UP STUDY AT EASTFIELD COLLEGE

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DEVELOPMENTAL STUDIES DIVISION of Eastfield College in Dallas is an instructional subdivision administering, among others, compensatory courses in mathematics, writing, and reading by PSI. The purpose of this study is to describe the resources, processes, and effects of these skills courses.

Since the compensatory skills courses exist to enable the nontraditional student to compete with other students, a follow-up study was devised to determine whether the performance of successful developmental studies students was comparable with that of students who did not take developmental studies skills courses.

Students enter developmental courses expecting none of the traditional payoffs. The courses do not count toward a degree plan, transfer to a senior institution, or credit. Despite the lack of such incentives, students enroll to increase their skills as well as their confidence. However, they are not as self motivated as they might seem. Some are as hostile toward the subjects as they were when they did not learn in earlier situations. Some have been out of school for so long they doubt every aspect of their learning. Some are continuing in an effort that seems endless in its complexity and frustration. At best, developmental students are unsure; at worst, defeated.

As they enroll they find three support services. The CRASH Lab (Composition, Reading, and Self-help lab) operates as an

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auxiliary learning facility for all students and faculty at Eastfield. Students can drop in once for individual assistance on a particular assignment or can set up a program for repeated visits. Faculty members coordinate numerous classroom supplements through the Lab services. The Mathematics Development Lab operates in conjunction with the Developmental Mathematics program providing supplemental instruction to students enrolled. The Math Lab offers diagnostic testing to all students but is physically limited in offering other services. The Office of Student Tutoring acts as a registry of qualified student tutors and arranges contacts between tutors and persons needing tutoring. Recommendations are obtained for each tutor and records are maintained concerning each contact.

The three compensatory skills courses (Writing, Reading, and Math) have several aspects of PSI in common. In each course, various forms of programmed materials are used that allow students to progress at their own pace. Both small group lectures and open lab settings are provided. Each class is supervised by one or more professional instructors who are assisted by student tutors, which provides as much individual contact for each student as possible. The courses provide for some degree of flexible entry and, with the exception of Reading, flexible exit upon mastery of material.

The grading system at Eastfield allows students to withdraw from a course until very late in the semester and receive only a grade of W. Another grade, P, indicates progress and remains on the student's transcript but does not contribute to the grade-

point average. These two options remove the punitive threat of a failing grade.

The material that follows describes the three compensatory skills courses, their utilization of PSI, and the results of the follow-up study for each course.

The Reading/Developmental Reading Program

A comprehensive reading program is a necessity in a community college. The National Reading Center in Washington, D.C., states: "One-third of all freshmen entering college (community and senior) this fall lack the basic reading skills they need to meet the minimal requirements for college study." In a study made at Eastfield College in Spring 1974, 800 students enrolled in Freshman English 101 took the Nelson-Denny Reading Test. Over 54% of these students were classified as remedial readers. It seems the National Reading Center's estimate was conservative for the Eastfield population.

All students enrolling in any Eastfield reading course take the Nelson-Denny Reading Test. From the raw data, which include an analysis of errors, an instructional prescription can be tailored to individual weaknesses. A contiguous diagnosis, complete with an analysis of each error, becomes the basis for prescriptive learning contracts.

Individual skill needs determine each student's program within our structure. Other opportunities include individual tutoring, taped-text programs, programmed text materials, multi-level-skills kits and books, video programs, and explanation-practice techniques in areas requiring an alternative approach.

Students are encouraged to recognize their own skill needs and to become competent self-learners. They are helped to understand such aspects of their role as a college student as grade-point averages, transferability and catalog interpretation, learning style matched with teaching style in selection of instructors, and use of library and research tools.

Follow-up. An attempt has been made to describe the performance of former successful reading students in selected transfer-level courses. A successful reading student is one who has scored 38 or higher on the comprehension part of the Nelson-Denny post-test, which indicates a reading comprehension sufficient for understanding college tests. Target courses selected were English 102, History 101 and 102, Government 201 and 202, Psychology 105, Sociology 101, and Humanities 101. These courses were compared as a group for students completing Developmental Reading 090/091 and Reading 101/102 and those who had not taken a reading course.

At the end of the Spring 1975 semester, students in each of the targeted transfer courses who had completed any reading course during one of the preceding three semesters were identified by a computer search of the merged student history files. The grade distribution for the students thus identified was compared with the grade distribution of all other students who took one of the target courses. Each group of students was separated into two groups: those successful (grades A, B, or C) and those not successful in the target course. A chi-square test for independence was performed in cases where the expected frequencies

were sufficiently large.

Of students who finished a Developmental Reading course with a reading comprehension score of 38 or higher, 89% (24 out of 27) were successful in the target courses, compared with 70% (3655 out of 5210) for students who took no reading courses. The withdrawal rate for the former reading students was 7% (2 out of 24); the withdrawal rate for the students who took no reading was 19% (991 out of 5210). The data were reduced to a two-by-two matrix and a chi-square test for independence was performed. The results are not statistically significant.

Similar analyses were performed for the grade distributions of students who completed RD 101 or RD 102 with reading comprehension scores of 38 or higher; the success rate was 78% (88 out of 113) compared with 70% (3744 out of 5345) and withdrawals accounted for 13% (15 out of 113) compared with 11% (595 out of 5345). These results are not statistically significant.

Discussion. There is a trend indicating that a successful socre on the comprehension subtest of the Nelson-Denny Reading Test is related to a higher rate of success in target courses. The Nelson-Denny Reading Test could be thus used as a predictor of success or at least provide a student with a realistic look at his learning potential if the instrument were used as an entrance assessment with appropriate counseling. The reading courses do provide a vehicle for building comprehension skills that give students an edge over students who did not take a reading course.

The Developmental Writing Program

Developmental Writing emphasizes diagnosis and correction of

deficiencies in basic writing skills. Spelling, grammar, vocabulary improvement, and organization are emphasized in students' paragraphs and themes. The program of composition varies according to individual needs from brief and simple forms to more complex critical and research writing.

Concurrent teaching is possible because each student works on an individualized, evolving contract. Each student submits one or more writing samples at enrollment, from which the instructor assigns programmed or modular materials suited to the student's deficiencies and goals. Punctuation, grammatical, and syntactical errors are culled from each student's formal paragraph assignments or free writing journal; assignments to correct these errors become part of the individual's continuing contract; and successful elimination of the errors completes that portion of the contract. Each contract contains a review of and introduction to several types of paragraphs and organization, and completion of at least one basic theme. Students may also ask class instructors or tutors for help in written assignments from other classes. A student too advanced for paragraph study may study theme styles from programmed materials or develop a contract individualized to his own perceived writing needs, e.g., critiques of various forms of literature, or technical reports or research papers.

The Developmental Writing courses are highly flexible with regard to entry and exit. A student may finish a contract sequence as rapidly as he is able and go on to more difficult levels of writing, or choose to cease attending at contract com-

pletion and to give his time to other course work. A student who shows extremely rapid progress in writing or who may have been misplaced in Developmental Writing may be promoted into an appropriate English course for credit. Conversely, a student in transfer credit English unable to manage the written work may be advised or choose to drop back into a Developmental Writing course. These (gratis) transfers between division changes should ideally occur within approximately the first third of the semester.

Students range in ability from the functionally illiterate to a few sophomores who feel their skills need polishing for their own upper-division college goals. Most students are older than average college freshmen. They are students who have recognized or been advised that their writing skills were inadequate for college, who have been out of public school for several years, and who can profit from an introduction to or review of paragraph organization, variety, styles, and purposes.

Follow-up. A follow-up study to describe the performance of Developmental Writing students in selected target courses was begun in Fall 1974. Target courses selected were English 101, History 101 and 102, and Government 201 and 202. Students enrolled in these courses during Fall 1974 and Spring 1975 were divided into two groups: those who had successfully completed a Developmental Writing course during one of the three preceding semesters and those who had not had such a course. Frequency tables were prepared and chi-square analyses were performed.

For target course English 101, 93% (28 out of 30) of the

former Developmental Writing students completed the target course successfully, compared with 68% (1572 out of 2294) for students who had not taken Developmental Writing. The data were reduced to a two-by-two matrix and a chi-square test for independence was performed. Results were significant at the 0.01 level. Approximately 7% (2 out of 30) of former Developmental Writing students withdrew or dropped English 101, compared with 21% (482 out of 2294) who had not had Developmental Writing courses.

For target courses English 101 and 102 for Spring 1975, successful completions were 92% (33 out of 35) for Developmental Writing students and 68% (1131 out of 1917) for non-Developmental Writing students or unsuccessful former Developmental Writing students. The data were reduced to a two-by-two matrix and a chi-square test for independence was performed. The differences in achievement were significant at the 0.01 level. As noted above, dropout rates for English 101 in Spring 1975 and Fall 1974 were 6.6% for former successful Developmental Writing students and 21% for the comparison group. But for English 101 and 102 combined, dropout rates for former successful Developmental Writing students were only 2.5% (1 out of 36), against 23% (443 out of 1917) for the comparison group. Failure percentages were similar for all groups.

Successful Developmental Writing students achieve passing, transferable grades as well as (or better than) the control groups; they have no higher failure rate; and they use withdrawal from target courses less than control groups.

In all history and government courses combined, approximately

84% (36 out of 43) of the former Developmental Writing students successfully completed the target courses, but only 73% (4172 out of 5725) of students not taking or not successfully completing Developmental Writing successfully completed these courses. The chi-square for this course grouping was not statistically significant, but the trend is the same as for English 101 and 102: students having had Developmental Writing complete the target courses as well as (or better than) students who have not had Developmental Writing courses.

The Developmental Math Program

The Developmental Mathematics program at Eastfield consists of a sequence of three courses: DM 090, Pre-algebra Mathematics; DM 091, Elementary Algebra; and DM 093, Intermediate Algebra. The Developmental Mathematics courses are taught in blocks with all three course levels meeting concurrently in the same room. The courses are self-paced and the instructional material is programmed. A developmental math block might consist of three instructors, two student tutors, and 75-80 students. Instruction is accomplished on a one-to-one basis. The student tutors administer exams, grade exams, and review exams with students individually.

Each course has ten subdivisions called steps, and there is an exam for each of the ten steps. The student has completed the course when he has completed the ten exams with a score of 80% or more. The student determines his own testing schedule and does not take the exam for a particular step until he feels he has mastered the objectives for the step. He must score at least 80%

on each step before proceeding to the next step.

The personalized, self-paced nature of instruction in Developmental Mathematics allows flexibility in entry and exit. The student who begins the semester in a degree-credit mathematics course and finds the course beyond his abilities may exchange that course for a developmental mathematics course at any time during the semester. He will arrange his testing schedule according to the time left in the semester. Conversely, the industrious student who begins the semester in Developmental Mathematics may complete the ten exams in his course before the end of the semester. At this point, the student has completed his obligation and may choose to begin work on the next developmental math course in the sequence or cease attending to devote more time to other courses.

Follow-up. The purpose of this investigation is to describe the performance of former successful Developmental Mathematics students in selected transfer level and technical-vocational mathematics courses.

Courses selected were MTH 101, College Algebra; MTH 104, Elementary Functions; MTH 111, Math for Business and Economics; and MTH 115, College Math in the transfer group. In the technical-vocational group were MTH 130, Business Math; MTH 139, Applied Math; and MTH 195, Technical Math. Students enrolling in a transfer-level course should have successfully completed DM 093 or the equivalent. Students enrolling in a technical-vocational course should have successfully completed DM 091 or the equivalent for algebra skills, or DM 090 or the equivalent for arithmetic skills.

At the end of the Fall 1974 and the Spring 1975 semesters, students in each of the targeted college credit courses who had completed the appropriate developmental course during one of the preceding three semesters were identified and the results processed in the same way as for the reading program. In target courses with DM 093 as prerequisite, 76% (47 out of 62) of the former developmental mathematics students succeeded, but only 61% (633 out of 1043) of students who did not attempt or did not complete DM 093. The respective withdrawal rates were 15% (9 out of 62) and 28% (289 out of 1043). In target courses in the technical-vocational group, the success rates were respectively 79% (15 out of 19) and 65% (251 out of 387); the dropout rates, 16% (3 out of 19) and 15% (59 out of 387).

We thus see that former students in developmental-skills courses are successful in the target courses at a performance level that is equal to or better than the success rate of all other students; and they have a dropout rate that is less than or no greater than that of all other students in the target courses.